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lation experiments have been tried on sugar cane but without success. The fungus would grow, and also fruit to some extent, at the point of inoculation, but would not spread into the healthy tissue.

C. W. EDGERTON

LOUISIANA AGRICULTURAL
EXPERIMENT STATION

SOCIETIES AND ACADEMIES

THE GEOLOGICAL SOCIETY OF WASHINGTON

At the 229th meeting of the society, held at the George Washington University on Wednesday evening, March 9, 1910, informal communications were presented as follows:

Mr. Chas. A. Davis exhibited a map showing the distribution of workable peat deposits in the United States and their relation to the areas of glaciation and heavy precipitation.

Mr. E. G. Woodruff presented a diagram constructed from measurements made along an outcrop of coal beds in central Wyoming, showing their pronounced lenticular character.

Mr. J. T. Pardee exhibited photographs and a sketch map of the region covered by the former glacial Lake Missoula, which once occupied some 4,500 square miles in the drainage basin of the Clark Fork in northwestern Montana and was dammed by a south flowing ice tongue of the Cordilleran ice cap near Lake Pend d'Oreille.

Regular Program

A Microscopical Study of some Sulphide Ores:
F. B. LANEY.

A Proposed Classification of Petroleum and Natural Gas Fields based on Structure: FREDERICK G. CLAPP.

The classification is a tentative one which was evolved at least in part in order to illustrate to oil operators the differences in geological conditions in different fields. The main divisions of the classification are as follows: (I.) Anticlinal and synclinal structures; (a) strong anticlines standing alone, (b) well-defined anticlines and synclines alternating, (c) monoclinial slopes with change in dip, (d) terrace structures, (e) broad geanticlinal folds. (II.) Domes, or quaquaversal structures (Salines). (III.) Sealed faults. (IV.) Oil and gas sealed in by asphaltic deposits. (V.) Contact of sedimentary and crystalline rocks. (VI.) Joint stacks.

As examples of subclass I. (a), the fields on the Eureka-Volcano-Burning Springs anticline of

West Virginia and certain California fields are given. In subclass I. (b) are placed most of the fields related to anticlines and synclines in the Appalachian province, the Caddo field of Louisiana, the Coalinga and Los Angeles fields of California and the Burma and other well-known fields in other countries. The majority of the oil and gas pools of southeastern Ohio belong in division I. (c), or in I. (d) which is an exaggerated form of I. (c). The best example known of subclass I. (e) is stated to be the extensive field on the Cincinnati anticline in Ohio and Indiana. Class II. includes the fields of the gulf coastal plain. Class III. is exemplified by certain pools in the Lompoc field and perhaps other fields of southern California. Class IV. is somewhat hypothetical, so far as oil and gas accumulations of economic value are concerned, but it may be exemplified by the pitch lake of Trinidad. Class V. is known to exist in the Province of Quebec and to some extent in northern New York state, where natural gas is found in the arkose zone of the Potsdam sandstone resting on prominent knobs in the underlying crystalline rocks. Class VI. was added after the discussion in accordance with a suggestion by Mr. M. R. Campbell. An example of it is a part, at least, of the Florence oil field in Colorado. In illustrating the proposed classification, several notable deficiencies in past assumptions of geologists and oil operators were mentioned, and the lessons to be drawn from them in the light of recent developments were emphasized.

Some Notes on the Mammoth Cave, Kentucky:

JAMES H. GARDNER.

The Mammoth Cave is essentially a product of solution in the St. Louis Limestone, which in this section of Kentucky is about 500 feet thick. Meteoric waters charged with carbonic acid gas began permeation of joint planes in the limestone as soon as Green River had cut its channel through the Kaskaskia sandstone into the St. Louis. In the opinion of the speaker these joints were produced by pressure exerted from the Cincinnati Arch either by movements of uplift or subsequent settling. The drainage of this section of Kentucky is chiefly underground where the St. Louis is the surface rock and the formation is one abounding in subterranean caverns.

The present entrance to the cave, which is in the hills bordering the east banks of Green River, is doubtless the original exit of Echo River, though this stream has found lower outlets from time to time and is now about 195 feet below this level. Writers on the cave have considered this

entrance in the light of its being an opening produced by falling in of the roof. It has this appearance due to the accumulation of talus in front of the mouth.

Brief references were made to the fauna of the cave in its relation to the effects of environment in the origin of species. Physical and geological phenomena were discussed including the movements of air currents, origin of calcium nitrate, deposits of calcium carbonate and gypsum rosettes.

FRANCOIS E. MATHES,
Secretary

THE SOCIETY FOR EXPERIMENTAL BIOLOGY AND
MEDICINE

THE thirty-eighth meeting has held at the Cornell University Medical College on Wednesday, April 20, 1910, at 8:15 P.M., with President Morgan in the chair. An executive meeting was held.

New members elected: Anna W. Williams, Katharine R. Collins, A. J. Goldfarb and Herman M. Adler.

Members present: Atkinson, Auer, Beebe, R. I. Cole, Cooke, Crile, Dochez, Ewing, Foster, Gies, Jackson, Jacobs, Joseph, Kast, Lamar, Lee, Levin, Leo Loeb, Lusk, MacCallum, McClendon, Meltzer, A. Meyer, Morgan, Murlin, Noguchi, Opie, Pearce, Rous, Shaffer, Shaklee, Torrey, Van Slyke, Weil, Wolf.

Scientific Program

"On the Behavior of Autodermic and Isodermic Skin Grafts in Cancer," G. W. Crile.

"Further Observations on the Hemolysis in Cancer," G. W. Crile.

"On the Neurocytologic Changes in Shock, Infections, Grave's Disease and with Certain Drugs," G. W. Crile.

"On Yeast Nucleic Acid," P. A. Levene and W. A. Jacobs.

"The Contact Irritability of the Uterine Mucosa," Leo Loeb.

"Adsorption of Venom of *Heloderma*," Leo Loeb and M. S. Fleisher.

"A Note on Parabiosis between Mice and Rats," R. A. Lambert.

"A Demonstration of the Inhibitory Effect of Magnesium upon Normal and Artificial Peristalsis of the Stomach and the Duodenum," D. R. Joseph and S. J. Meltzer.

"Recovery from Fatal Doses of Strychnine by the Aid of Curarin and Artificial Respiration (Insufflation Method)," A. O. Shaklee and S. J. Meltzer.

"Intracellular Proteolytic Enzymes of the Liver," A. R. Dochez.

"Enzymes and Antienzymes of the Blood Serum with Certain Degenerative Changes in the Liver," Eugene L. Opie and B. I. Barker.

"A Preliminary Note on Experimental Lobar Pneumonia with a Demonstration of Specimens," R. V. Lamar and S. J. Meltzer.

"Experiments bearing on the Nature of the Karyokinetic Figure," T. H. Morgan.

"The Effect of Vagus Section upon Serum Anaphylaxis in Guinea-pigs," J. Auer.

"Notes on the Vaso Reaction in Dogs produced by Injections of Extracts of the Tubercle Bacillus," J. P. Atkinson and Charles B. Fitzpatrick.

"Immunity to the Growth of Cancer induced in Rats by Treatment with Mouse Tissue," Isaac Levin.

"The Early Stages of the Spontaneous Arterial Lesions in the Rabbit," Isaac Levin and John H. Larkin.

(A) "Artificial Cyclopia in the Smelt," (B) "Cataphoresis of Proteids in the Living Cell," J. F. McClendon.

"Nitrogen and Sulphur Metabolism in Morbus Ceruleus," N. B. Foster.

The following communications were read by title:

"Parenteral Protein Assimilation," P. A. Levene and G. M. Meyer.

"A Method of Isolating the Cerebro-medullary Circulation," Arthur B. Eisenbrey.

"A Reversion of the Starch-dextrin Reaction," Edward T. Reichert.

(A) "The Role of Alkali in the Development of the Egg of the Sea-urchin," (B) "How can the Process Underlying Membrane Formation cause the Development of the Egg?" Jacques Loeb.

"An Investigation of the Place of Formation of Immune Bodies by the Method of Organ Transplantation," A. B. Luckhardt.

"The Concentration of Ammonia in the Blood of Dogs and Cats Necessary to produce Ammonia Tetany," Clara Jacobson.

"The Non-production of Sugar from Tyrosin and Glucosamin in Phlorhizin Glycosuria," A. I. Ringer and Graham Lusk.

"The Daily Curve of Nitrogen Elimination in the Pregnant, as compared with the Non-pregnant Dog," J. R. Murlin.

"Rate of Contraction of Muscle under the Influence of a Voluntary Stimulus," H. B. Williams.

"Filtration through Collodion Sacs," Edna Steinhardt.

"The Activation of Pancreatic Extract," A. R. Dochez.

EUGENE L. OPIE,
Secretary

THE AMERICAN CHEMICAL SOCIETY
NEW YORK SECTION

THE seventh regular meeting of the session of 1909-10 was held at the Chemists' Club on Friday, April 8.

Dr. F. D. Dodge read a paper entitled "Notes of the Determination of Essential Oils."

The remainder of the program consisted of a symposium on leather, arranged by Dr. Allen Rogers, which included the following papers:

"General Outline of the Industry," Allen Rogers.

"The Process of Bating," Alan A. Clafin.

"Vegetable Tanning Materials," John H. Yocum.

"Recent Advances in Chrome Tannage," Otto P. Amend.

"The Coloring of Leather," F. E. Atteaux.

"Oils used in the Leather Industry," Edgar A. Prosser.

C. M. JOYCE,
Secretary

THE UTAH ACADEMY OF SCIENCES

THE third annual meeting of the academy was held at Salt Lake City, on Friday and Saturday, April 1-2, 1910.

The sessions opened at 8 P.M. Friday evening and 2 P.M. Saturday afternoon. President W. C. Ebaugh occupied the chair.

At the annual election held on Saturday afternoon, the following officers and members of the council were chosen:

President—Dr. E. D. Ball, Utah Experiment Station, Logan.

First Vice-president—C. C. Spooner, Salt Lake High School.

Second Vice-president—Dr. S. H. Goodwin, Proctor Academy, Provo.

Secretary—A. O. Garrett, Salt Lake High School.

Treasurer—John B. Forrester, Salt Lake City.

Councillors-at-large—Professor Marcus E. Jones, Dr. C. T. Vorhies, A. F. Greaves-Walker.

The following papers were read at the annual meeting:

"A General Survey of the Jurassic of South-eastern Utah," John B. Forrester, Salt Lake City.

"Mendelism," Dr. E. D. Ball, Utah Experiment Station, Logan.

President's address, Dr. W. C. Ebaugh, University of Utah, Salt Lake.

"Preliminary Report on the Animals of Great Salt Lake," Dr. C. T. Vorhies, University of Utah, Salt Lake City.

"Recent Analyses of Water from Great Salt Lake," Wallace Macfarlane, Salt Lake City.

"Preliminary Report of the Plants of Great Salt Lake," L. L. Daines, University of Utah, Salt Lake City.

"Recent Progress in Economic Entomology," Professor E. G. Titus, Utah Agricultural College, Logan.

"Efflorescence or Scum on Brick Work," A. F. Greaves-Walker, Salt Lake City.

"A Reported Occurrence of Native Iron in Utah," Dr. W. C. Ebaugh, University of Utah, Salt Lake City.

"The Composition of Solids Precipitated from the Atmosphere during 'Salt Storms,'" Dr. W. C. Ebaugh.

A. O. GARRETT,
Secretary

ST. LOUIS SECTION, AMERICAN CHEMICAL SOCIETY
ST. LOUIS CHEMICAL SOCIETY

THE following papers have been presented before these two affiliated chemical societies, at the meetings held in January, February, March and April, 1910.

"Timber Preservation," Messrs. A. L. Kammerer and E. B. Fulks.

"The Action of Magnesium upon the Vapors of Organic Compounds," Professor E. H. Keiser.

"The Extraction of Glycerine from Soap Lye," Mr. Clarence B. Cluff.

"Chemistry in America and Germany," "Electrolytic Preparation of Hydrazine," Mr. R. F. Weber.

"Terpeneless Extract of Lemon, and Methods of Analysis thereof," Dr. S. H. Baer.

"A Rapid Method of Estimating Iron in Iron Ores," Dr. LeRoy McMaster.

"Ozone in Water Treatment," Mr. W. F. Montfort.

The two societies also have visited the plants of the Laclede Gas Light Company and of the N. K. Fairbanks Co., the plant of the latter company, in St. Louis, being engaged in the manufacture of laundry soap and washing powder.

R. NORRIS SHREVE,
Sec. St. Louis Sec. Amer. Chem. Soc.
GEO. LANG, JR.,
Rec. Sec. St. Louis Chem. Soc.